

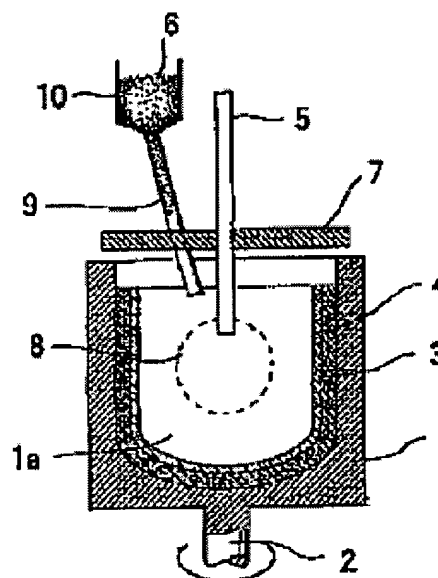
QUARTZ-GLASS CRUCIBLE FOR PULLING UP SILICON SINGLE CRYSTAL

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Inventor: MATSUMURA MITSUO; MATSUI HIROSHI
Applicant: SHINETSU QUARTZ PROD
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Abstract of JP8169798

PURPOSE: To obtain a high-purity quartz-glass crucible by forming the outer layer with a bubble-rich quartz glass layer contg. minute amts. of K, Na and Li and a specified amt. of Al and the inner layer with a transparent silica glass contg. a specified amt. of OH group.

CONSTITUTION: A natural quartz powder contg. ≤ 0.3 ppm each of Na, K and Li and ≥ 5 ppm Al alone or the powder mixed with an amorphous synthetic silica powder is preformed in a rotary die 1, and the preform is heated from its inner face, melted and then cooled to form a bubble-rich crucible substrate 3 (outer layer). An electrode 5 is then inserted into the die 1 contg. the substrate 3, and the upper end of the crucible is closed with an annular lid 7. A high-temp. gas atmosphere 8 is formed in the substrate 3 with the electrode 5, and a high-purity amorphous silica powder 6 contg. 200ppm OH group and having 30-1000 μ m grain diameter is supplied from a nozzle 9. The silica powder 6 on the inner face of the substrate 3 is melted and deposited on the inner face of the substrate 3 to form a substantially non-bubble transparent silica glass layer (inner layer) along with the silica powder 6, and a quartz-glass crucible for pulling up a single crystal is obtained.



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